

What is claimed is:

1. A forward/backward switching control apparatus for a hydraulic drive vehicle, comprising:

a variable displacement type hydraulic pump driven by an engine for discharging pressure oil selectively in two directions;

an electromagnetic pump inclination angle control mechanism for making the discharge displacement of the variable displacement type hydraulic pump variable and for causing the same to discharge selectively in the two directions;

electric operating means for outputting signals to run the hydraulic drive vehicle forward or backward; and

control means for outputting, when the electric operating means is switched either from the forward position through the neutral position to the backward position or from the backward position through the neutral position to the forward position to output the forward signal or the backward signal and when the time for switching to the forward signal or the backward signal is not longer than a preset time, a first modulate signal for delaying the return times from the forward position to the neutral position and from the backward position to the neutral position, to the electromagnetic pump inclination angle control mechanism.

2. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 1, further comprising

control means for outputting the return time by the first modulate signal variably in accordance with an engine rotation speed.

3. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 1, further comprising control means for outputting a second modulate signal to delay the time for going from the neutral position to the forward position or from the neutral position to the backward position, to the electromagnetic pump inclination angle control mechanism.

4. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 1, further comprising control means for outputting a third modulate signal to delay longer for the lower engine rotation speed, when the engine rotation speed is not higher than a preset rotation speed.

5. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 1, further comprising control means for interrupting the first modulate signal of the return time and outputting the second modulate signal of the going time, when the engine rotation speed changes from low to high.

6. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 2, further comprising control means for outputting a second modulate signal to delay the time for going from the neutral position to the forward

position or from the neutral position to the backward position, to the electromagnetic pump inclination angle control mechanism.

7. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 2, further comprising control means for outputting a third modulate signal to delay longer for the lower engine rotation speed, when the engine rotation speed is not higher than a preset rotation speed.

8. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 2, further comprising control means for interrupting the first modulate signal of the return time and outputting the second modulate signal of the going time, when the engine rotation speed changes from low to high.

9. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 6, further comprising control means for outputting a third modulate signal to delay longer for the lower engine rotation speed, when the engine rotation speed is not higher than a preset rotation speed.

10. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 6, further comprising control means for interrupting the first modulate signal of the return time and outputting the second modulate signal of the going time, when the engine rotation speed changes from low to high.

11. A forward/backward switching control apparatus for a hydraulic drive vehicle according to Claim 9, further comprising control means for interrupting the first modulate signal of the return time and outputting the second modulate signal of the going time, when the engine rotation speed changes from low to high.